

312 varies from less than a mile to several miles. In addition to Turfan, there are a few *kariz* in the oases of Pichang and Guma, and some years ago they were tried, without much success, on the outer slopes of the extreme eastern Tien Shan, north of Barkul, using skilled workers from Turfan. A *kariz* may be very small: field notes show one in the Komul oasis irrigating only six and a half acres, which is close to the average for this oasis. The most recent figures show the following statistics:

Number of <i>kariz</i>		Total acreage irrigated by <i>kariz</i>	Average irrigated acreage per <i>kariz</i>
Turfan ⁹	370	28,000 acres	76 acres
Toksun	166	10,700 "	65 "
Komul ¹⁰	495	3,700 "	7 "
TOTAL	1,031	42,400	

312 The construction of *kariz* involves a heavy capital expense.
435 Stein, some forty years ago, estimated the cost of a single long *kariz* in Turfan at over 300 pounds.¹¹ A long *kariz* recently constructed cost 50,000 Sinkiang dollars. The risk of failing to find water deters peasants from joining together to dig a *kariz*, and construction is therefore usually undertaken by wealthy landlords who hire labor. Their reward, when they are successful, is a monopoly of the water, which they sell to the peasants in return for a share of the harvest. This form of enterprise is so profitable
● [454] that some landlords sell all their land and invest entirely in *kariz*.¹²

⁹ Ni Chao, "Report on Sinkiang's Irrigation," *Shui-li Wei-yuan-hui yueh-k'an* (monthly of the Conservation Administration), August 1945 (in Chinese).

¹⁰ Huang Yu-hsien, "Irrigation in Hami," *Ching-chi chien-she chi-k'an* (Quarterly Journal of Economic Reconstruction) Vol. III, No. 1, July 1944 (in Chinese).

¹¹ Aurel Stein, *Ruins of Desert Cathay*, London, 1912, Vol. II, p. 361.

¹² This capitalistic turn in the digging of *kariz* is probably a late development. It is likely that in the eighteenth century, when Turfan was ruled by the Khojas, *kariz* were built by exercising the feudal power to demand unpaid labor as an obligation to the lord.

316 Interesting is the claim that a two and a half pound gold nugget once was mined from the Altai Hou Kou field. The richest of the South Sinkiang gold deposits are in the vicinity of Cherchen and Keriya. Local villagers have contracted for extraction of ore from these deposits, and each year over 3,500 taels are said to be paid for the mining privileges. These are the best known gold fields of the New Sinkiang:

GOLD FIELDS IN SINKIANG

<i>Locale</i>	<i>Field</i>	<i>Comment</i>
A Shan (Altai)	Tung Kou Hsi Kou Ch'ien Kou Hou Kou Chung Kou Ha-hsiung Kou Pan-tang Kou	2½ lb. nug- get mined "High- est" qual.
Barkol (Chen-hsi)	Hsiao Liu Kou	
Cherchen (Ch'ieh-mo)	Unnamed	
Ch'i-t'ai (Ku Ch'eng-tzu)	Unnamed	
Sui-ting (I-li)	Ch'iao-li-k'o R.	
Keriya (Yü-t'ien)	A-ha-t'a-k'o Shan Ch'ia-pa Shan Tsao-li-ya-k'o Yu-mo-chiang Shan	
Sui-tung (?Sui-ting or I-li?) ..	Unnamed	
Ta Ch'eng (Chuguchak)	Ha-t'u Shan	Placer. Between Ta- erh-ta-mu-t'u and Su-erh-t'u Rivers
Tihwa	Unnamed	

[454] According to rumor, gold is so plentiful in Sinkiang that all Moslem families have their own caches hidden away; many of these are individually of unimportant amount, but the sum total is supposed to be large, and some of the caches are said to be "several thousands of taels." One can understand, therefore, why the Sinkiang gold reserve and annual production have been enthusiastically estimated at 31,300,000

241 it is calculated that a discharge of one cubic meter per second
312 should irrigate over 6,000 acres, whereas in Sinkiang the figure
is estimated at 2,530 acres. There is a lack of drainage to provide for washing out the salt deposited by irrigation and of storage lakes and reservoirs and even small scale tanks. As a result, it is estimated that from a third to a half of the potential supply runs to waste.

One of the most important irrigation practices is the k̄riz or qanats, a gently sloping tunnel which leads along the axis of an alluvial fan, bringing ground water for irrigation from the upper slope to the surface lower down. The slope of the k̄riz is somewhat more gentle than that of the fan, and the k̄riz may be miles in length. A line of wells is dug at intervals and connected at the bottom by a continuous tunnel, three or four feet in diameter. Near the mountains, the k̄riz may be fifty feet below the surface. As the foot of the slope is reached, the shafts are more shallow, until at last the water emerges into the open air. In this way, ground water at the base of the mountains is tapped and brought to the surface of the plain. When the tunnel caves in or fills with sediment, a distant oasis may need to be abandoned.

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312 Springs and subterranean flows are supplementary sources of
241 water in some oases. Small pits are used for storage of drinking water in some oasis towns. If these reservoirs are silted and new ones not constructed, the oasis will sooner or later have to be abandoned.

311 The farms surround the oasis, and the utilization of land is
312 determined by the proximity of irrigated land to the middle of the
241 oasis. Land nearest the market places for farm produce receive most of the fertilizer, in the form of night soil, and intensive garden cultivation of vegetables and fruits is practical on this land. Within this zone some cash crops such as apricots and other fruit are usually grown for the market. Beyond this inner area, the amount of fertilizer applied decreases rapidly. Two other zones follow where practically no fertilizer is used and hardier crops such as millet, kaoliang, and potatoes are planted. This land must be fallowed. Beyond this zone there is usually no water and the desert begins abruptly. The fringe area may sometimes be used for grazing, particularly of sheep.